# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

## Declaration Under 37 C.F.R. 1.131

As the below named inventor, I hereby declare that:

I invented the subject matter claimed in U.S. Pat. No. 6,658,260 ("The Invention") at least as early as April 6, 2001, as evidenced in the attached April 6, 2001 email from myself to in-house counsel for the company for which I was at the time, and currently am, employed by ("April 6, 2001 Email"). The April 6, 2001 Email attaches a detailed PowerPoint file showing The Invention.

Conception and reduction to practice of The Invention was performed in the United States, in particular in the state of Maryland.

The April 6, 2001 Email evidences my conception of The Invention on or prior to April 6, 2001.

The attached "Proposal for Message Distribution Center Inter-Carrier Messaging Services" ("May 7, 2001 Proposal"), completed by the company that employs me, on or before May 7, 2001, further evidences my conception of The Invention before May 7, 2001.

In pursuit and assistance, copies of both the April 6, 2001 Email, and the May 7, 2001 Proposal, were forwarded to outside patent counsel for preparation into formal patent filings at the U.S. Patent & Trademark Office.

Outside patent counsel diligently prepared U.S. Provisional Patent Application No. 60/316,973, and filed the same on September 5, 2001.

Diligent preparation of the regular patent application continued, and on or before October 30, 2001, a draft regular U.S. Patent Application was completed by outside patent counsel, and forwarded to me for my review.

I performed a detailed review of a final copy of draft regular US Patent Application, and executed the Declaration on October 30, 2001.

Two days later, on November 1, 2001, U.S. Appl. No. 09/985,032 was filed at the United States Patent and Trademark Office.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor: **Chris KNOTTS**
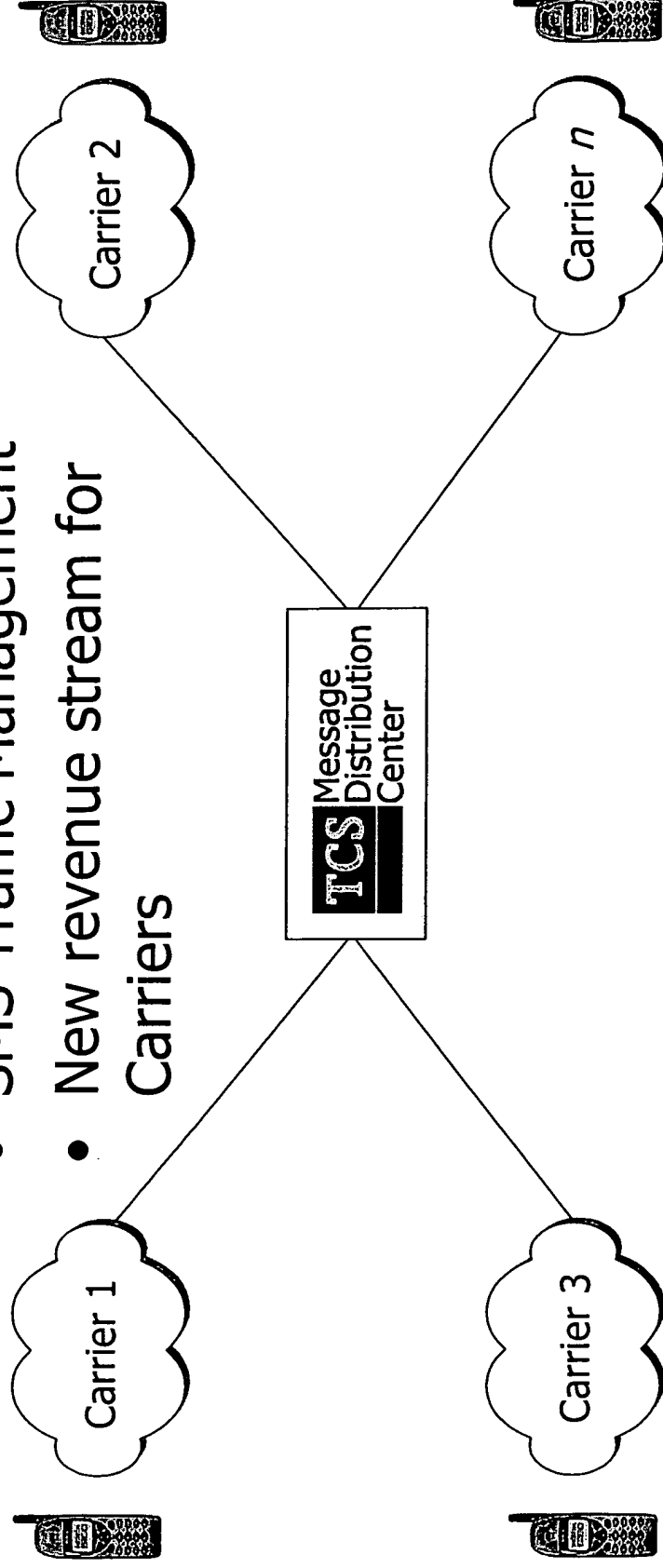
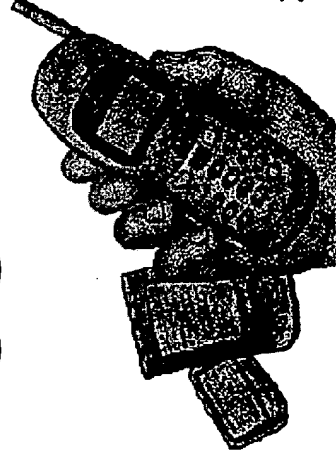Inventor's signature _____ Date 4|26|05

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      "Drew Morin" <MORIN@telecomsys.com>,
      "Patrick Sweeney" <SweeneyP@telecomsys.com>,
      "Bruce White" <WhiteB@telecomsys.com>
Cc: "Mark Johnson" <JohnsonM@telecomsys.com>,
      "Nancy Riess" <RiessN@telecomsys.com>
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It appears that we may be "first to market" with this process.  I think we =
have something patentable here - at least pieces of it.  How do we explore =
this?


Chris



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```

# TCS Message Distribution Center

# MDC Inter-Carrier Messaging

**TCS** TeleCommunication Systems

*Enabling Convergent Technologies*®

# Inter-Carrier Messaging

**TCS** Message Distribution Center

- "Phone number only" messaging
- SMS Traffic Management
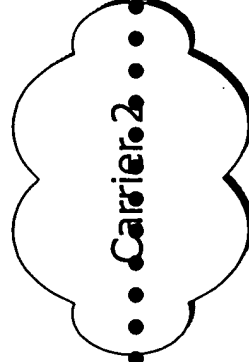- New revenue stream for Carriers

Carrier 1

Carrier 2

Carrier 3

Carrier *n*

**TCS** Message Distribution Center

**Subscriber ← → Subscriber**

# Inter-Carrier Messaging



TCS Message Distribution Center

4439949854

Carrier 1 (MDC Customer)

$

Message Distribution Center

2-Way SMS

Carrier 2

4105551234

Send to 4105551234

Message from 4439949854@mdc.carrier-1.net

Native SMS

E-mail

3

# Inter-Carrier Messaging



Message from 4105551234

Message to 4439949854@mdc.carrier-1.net

Native SMS

E-mail

# Architecture Options TCP/IP

## TCS Message Distribution Center

**Message Distribution Center**

Other Carriers or Enterprises

SMPP, MDC API, or RMI

**TCS Message Distribution Center**

Other Carriers or Enterprises

SMPP, CDMP, OIS or RMI

MIN not in network?  Route to MDC.

SMPP or RMI

Wireless Internet Gateway

Wireless Internet Gateway

SMPP, CDMP, OIS

SMPP

SMSC

SMSC

SS7

SS7

STP

STP

SS7

SS7

MSC

MSC

### Carrier 2

- Supports 1-Way SMS
- Provides 2-Way SMS if TCS WIG
- No protocol conversion needed

### Carrier 1

- Requires Carrier Agreement
- Very fast to market

# Architecture Options SS7

## TCS Message Distribution Center

**Carrier 2**

- Provides 2-Way SMS if TCS SMSC
- TCS SMSC does protocol conversion

SMSC — SS7 — STP — SS7 — MSC

STP — SS7 — TCS Message Distribution Center — SS7 — STP

SMSC MIN-to-SMSC table
Finds SMSC in neighbor network

SMSC — SS7 — STP — SS7 — MSC

**Carrier 1**

- Requires 2-Way SMS
- Requires Carrier Agreement
- Requires STP Gateway rules

# Proposal for
# Message Distribution Center
# Inter-Carrier Messaging
# Services

May 7, 2001

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Table of Contents

## List of Attachments

## List of Figures

## List of Acronyms

| API | Application Programming Interface |
|-----|-----------------------------------|
| HTML | Hypertext Markup Language |
| HTTP | Hypertext Transfer Protocol |
| IN | Intelligent Network |
| IP | Internet Protocol |
| MDC | Message Distribution Center |
| MIN | Mobile Identification Number |
| NOC | Network Operations Center |
| PAM | Presence and Availability Management |
| RPC | Remote Procedure Call |
| SLA | Service Level Agreement |
| SMPP | Short Message Peer-to-Peer |
| SMS | Short Message Service |
| SMSC | Short Message Service Center |
| SMTP | Simple Mail Transfer Protocol |
| WIG | Wireless Internet Gateway |
| XML | Extensible Markup Language |

## 1.0 Introduction

TeleCommunication Systems (TCS) is pleased to present SkyTel Communications, Inc. (SkyTel) this proposal for Message Distribution Center (MDC) Inter-Carrier Messaging Services.

Over the past month, representatives from TCS and SkyTel have engaged in a stimulating dialogue regarding the use of the TCS MDC Inter-Carrier Messaging Service as a means to provide SkyTel subscribers with a "phone number only" messaging capability when transacting text messages with Short Message Service (SMS) subscribers on other networks. Issues of interface protocol, subscriber experience, and quality of service have been constant themes of the discussions.

Building on our messaging expertise and a vision of extending the power of the Intelligent Network to enterprises and other third parties, TCS developed an SMS clearinghouse called the Message Distribution Center. The MDC, along with the value-added services detailed in this proposal, represent an opportunity for SkyTel to strengthen its position as a dominant wireless messaging operator by providing its subscribers a capability that will enhance their communications freedom.

It is our desire to clearly communicate TCS' commitment to supporting SkyTel's efforts in increasing the value of the SkyTel Interactive Messaging service. We look forward to the continuation and expansion of our positive and productive relationship.

## 2.0 Message Distribution Center (MDC) Overview

The Message Distribution Center empowers carriers, enterprises and other third parties such as software developers, web developers, and content providers with a single point of interface for the transaction of SMS messages as well as access to advanced IN functionality. Built upon TCS's carrier-grade Wireless Internet Gateway (WIG), the MDC efficiently delivers high volumes of text messages by utilizing its highly available and scaleable architecture.

At its core, the MDC has a powerful Application Programming Interface (API) that enables developers to fully integrate text messaging capabilities into their applications. Connectivity can be accomplished either through SMTP, HTTP, SMPP, XML Remote Procedure Calls or by establishing a TCP/IP Win Socket connection.

A major challenge facing carriers is the lack of native Inter-Carrier Messaging. Native messaging is defined as "phone number only" messaging, as opposed to e-mail-based messaging. For example, a subscriber of Carrier "A" can only send and receive native SMS messages to and from other subscribers of Carrier "A". To send a message from Carrier "A" to Carrier "B", the subscribers must know and input the entire e-mail address of the destination device.

The e-mail address typically consists of the phone number and a special domain used specifically for messaging (i.e. 4105551234@mobile.myportal.xyzwireless.net). Simple "phone number only" messaging across major carrier networks is critical to rapid consumer adoption of

messaging in the United States. Optionally, carriers can structure their pricing plans to recognize additional revenue from inter-carrier messages.

In other parts of the world, native SMS inter-carrier messaging is accomplished through direct carrier-to-carrier interconnections. This is possible because most carriers outside of the US operate GSM networks, so there are little or no technical barriers to interconnectivity.

The interconnection of like air interface technologies (such as GSM) is not an option in the United States. Each major U.S. carrier has deployed a different, competing air interface technology (CDMA, TDMA, GSM, I-DEN, etc). This technology dispersion allows carriers to differentiate their service offers form one another, but the US consumers suffers because of this lack of standardization across networks.

The MDC Inter-Carrier Messaging Service is a value-added service of the MDC that allows carriers to offer "phone number only" message transactions across multiple disparate networks.
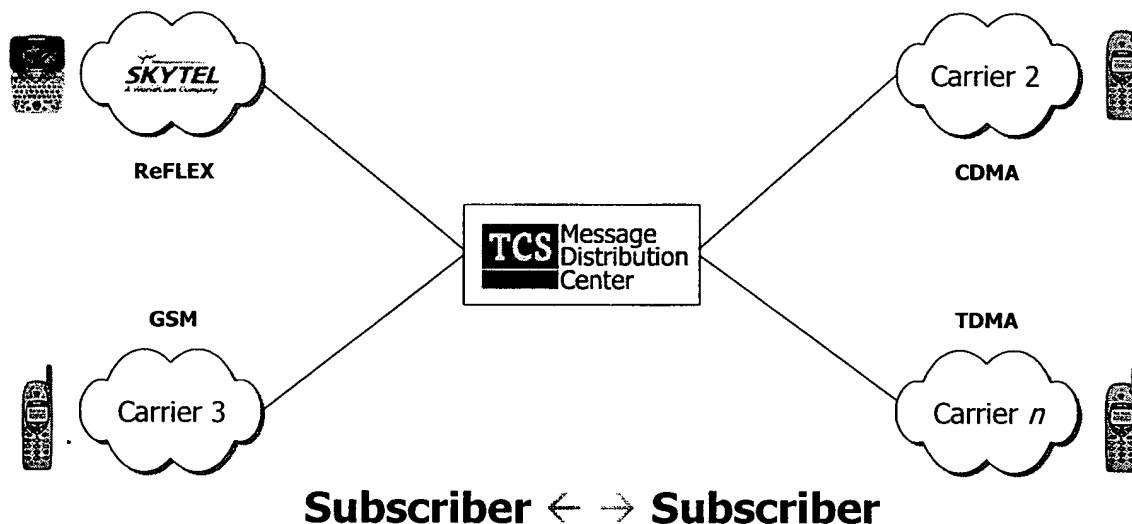
Figure 2-1 - MDC Inter-Carrier Messaging

## 3.0 Inter-Carrier Messaging Technical Architecture

The technical architecture proposed by TCS can is best represented in the Figure 3-1. In basic terms, the MDC acts as a clearinghouse for message transactions between SkyTel and other carrier networks.
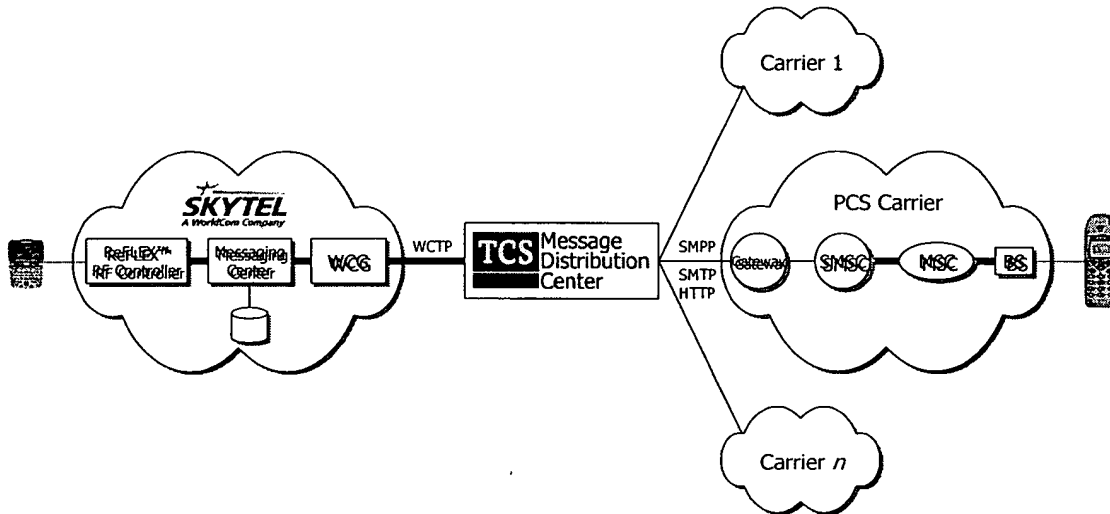


Figure 3-1 - Inter-Carrier Messaging Architecture

SkyTel has indicated that communication between the SkyTel network and the MDC must be through the Wireless Communications Transfer Protocol (WCTP).

The MDC currently supports input via HTTP, XML RPC, direct TCP/IP sockets, SMTP, and COM objects. The MDC also supports direct wireless carrier SMSC connectivity using SMPP, CIMP, and OIS. TCS has current plans to add full support for WCTP by the end of Q3 2001. In this proposal, TCS has architected a solution that utilizes WCTP as an input protocol to the MDC. The Implementation Timeline in Section 7.0 details the delivery of WCTP output support. If necessary, the specifics of WCTP output support can be negotiated further.

Given Skytel's requirement to use WCTP in communication with the Message Distribution Center, the following call flow is proposed:
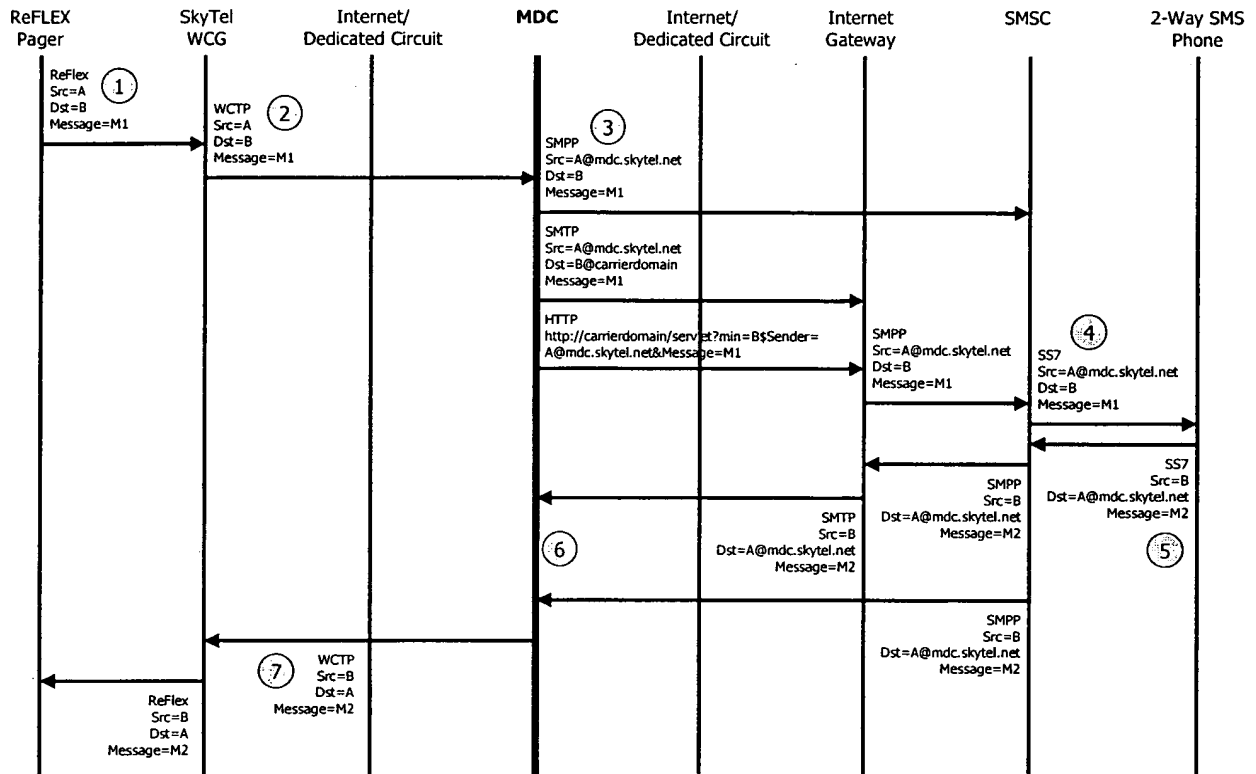


Figure 3-2 - Inter-Carrier Messaging Call Flow

Explanation of Steps Depicted in Figure 3-2

Step 1:Pagers and personal communicators on the Skytel network would initiate messages to non-Skytel Mobile Identification Numbers (MINs).

Step 2:SkyTel's network elements identify non-Skytel addresses and forward them to the MDC via WCTP.

Step 3:As the MDC receives a WCTP message from SkyTel, it first determines the destination carrier as well as the protocol supported by the carrier (SMPP, SMTP, HTTP, etc.) based upon the MIN. Then the MDC appends the MDC/Skytel domain (*mdc.skytel.net* in the diagram) to the SkyTel customer's PIN and routes the message accordingly.

Step 4:The carrier receives the message in the form of *MIN@carrierdomain* and forwards it to the handset.

Step 5:Depending upon the type of relationship TCS enjoys with the carrier, messages are either transported directly from the carrier's SMSC to the MDC using SMPP (or other protocol)

OR they are directed to the carrier's Internet gateway using SMPP (or other protocol) and then onto the MDC using SMTP.

Step 6: The MDC receives a mobile originated message from the carrier (via either SMPP or SMTP) replying to the original message. The MDC routes the message to SkyTel's network.

Step 7: SkyTel's network receives the message and forwards it to the ReFLEX pager.

Other Considerations:

☐ Connectivity between SkyTel and the MDC could initially be over the public Internet. In the future it is recommended that a Virtual Private Network (VPN) or a dedicated circuit be implemented between Skytel and the MDC for increased throughput, security and reliability.

☐ Another function of the above call flow would allow for delivery receipt notification between Skytel devices and carrier handsets on which receipts are supported.

## 4.0 Network Connectivity

TCS's strategy for the MDC is to develop inside-the-network connectivity with all the major PCS and paging carriers and as many tier 2 and 3 carriers as is feasible. This level of connectivity enables TCS to provide enhanced SMS functionality and improved reliability over open gateway connections. Where TCS does not yet have an inside-the-network connection, we utilize connections to carriers through open SMTP and HTTP gateways. These open gateways provide a reliable message delivery mechanism, though they lack the ability to support enhanced services.

## 4.1 Tier 1 U.S. Carrier

TCS is currently in negotiations with a number of the major U.S. carriers for direct connectivity to their SMS infrastructures. Figure 4-1 represents our best estimates regarding direct network connectivity to the major U.S. carrier networks. For reference, we have included the TCS products each network has deployed:

| Carrier | TCS Products | Current MDC Interface | Estimated Direct Connectivity |
|---|---|---|---|
| **Verizon** | SMSC/Wireless Internet Gateway | Open Gateway/ Preferred List Status[1] | Q2 2001 |
| **Sprint PCS** | SMSC | Open Gateway/ Program Member[2] | Q2 2001 |
| **AT&T Wireless Services (AWS)** | None/Negotiations | Open Gateway | Q3 2001 |
| **Nextel** | None | Open Gateway/ Program Member[3] | Q3 2001 |
| **VoiceStream** | Wireless Internet Gateway | Open Gateway | Q3 2001 |
| **Cingular** | None/Negotiations | Open Gateway | Q4 2001 |
| **Quest** | SMSC/Wireless Internet Gateway | Open Gateway | Q4 2001 |

[1] TCS has an agreement in principle with Verizon Wireless that specifically excludes messages sent from the MDC from the Anti-SPAM rules resident within their SMTP and HTTP Gateways.

[2] TCS in a member of Sprint PCS' SMPP connectivity program.

[3] TCS in a member of Nextel's Developer Program. TCS in currently implementing the required SNPP interface within the MDC.

Figure 4-1 – Network Connectivity Matrix

## 4.2 International Carriers

TCS is well positioned to acquire this connectivity, both domestically and internationally, as it already has relationships with many carriers around the world. TCS has Wireless Internet Gateway and QueryNet® deployments underway in multiple GSM networks worldwide.

As part of the TCS effort to establish direct connectivity with international operators, TCS recently solicited Requests for Information (RFI) from major aggregators of GSM connectivity to carriers in Europe, Asia, the Middle East and Africa. It is our objective is to have established relationships with key global connectivity providers by the end of Q2 2001.

More information, such as specifics carriers, supported network features, and pricing matrices, will be provided to SkyTel as it becomes available.

## 5.0 TCS Network Operations Center

TCS has a carrier-class Network Operating Center (NOC) in Seattle, Washington. Additionally, TCS operates carrier-class, redundant Data Centers in Ashburn Virginia and Seattle, Washington with fail over locations in Phoenix, Arizona, and Annapolis, Maryland. These centers are connected via redundant T-1s and have mirrored applications and servers at each location.
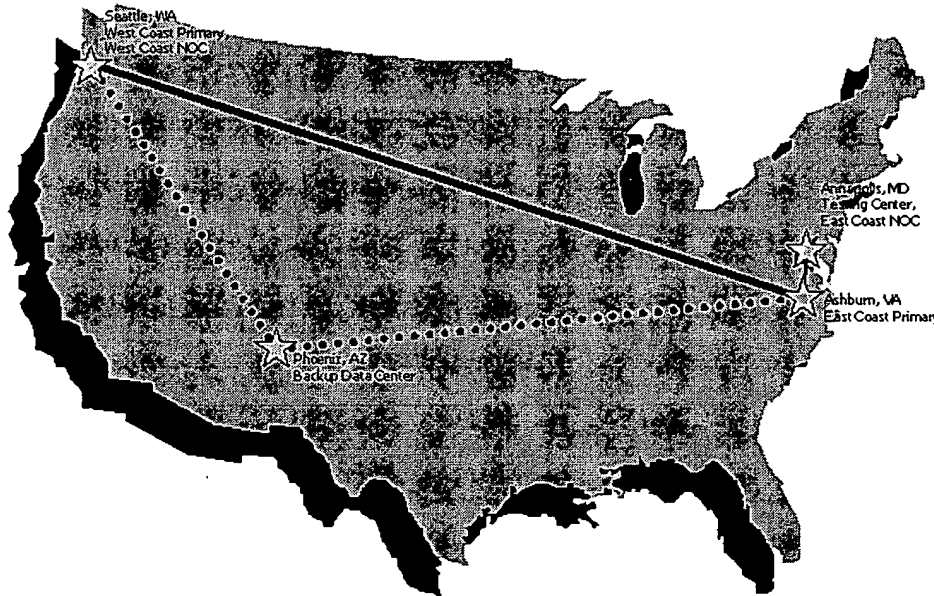


Figure 5-1 - Data Center Locations

The Network Operations Center (NOC) operates on a 24X7, 365-day basis. This team provides monitoring and Tier I support. TCS fully staffs these NOCs with highly qualified personnel. The TCS Operations Organization is comprised of a, Operations Director, NOC Manager, Service and Product Subject Matter Expects (SME) that provide Tier II and Tier III Support, Project Management Team, Operations Support Center, Tools Development, Design Engineering and Operations Engineering Group that comprised of Cisco Certified Internet work Experts (CCIE), SS7, Switch, SCP and IP Engineers.

TCS provides an assigned engineer and backup engineer support. The assigned engineer meets with the designated staff and performs network analysis on a regular basis. The assigned engineers have at least three years of industry experience to possess a CCIE certification, and/or are on a CCIE certification track, and serve as a primary technical contact.

A Project Management Professional (PMP)-certified TCS project manager also coordinates the transition process to the TCS NOC for approximately the first three months of service.

TCS NOC support engineers are required to hold a variety of certifications in network hardware and software. TCS' training program ensures that the support engineers and managers

maintain their certifications and update their skills, as the market requires. In addition to the above mentioned CCIEs, the staff consists of CNEs (Certified Novell Engineers) , MCSEs (Microsoft Certified Systems Engineers) as well as employees with wide-ranging experience with, and certifications for, Lucent, 3Com, Marconi, and Nortel equipment.

TCS NOC facilities have UPS equipment that will keep all the data machines running for up to seventeen hours. In the event of a power outage, the UPS will take over until the diesel generator comes online, this is an instantaneously activity. There are two days worth of fuel on site. TCS NOC and Data connectivity design provides diverse paths with multiple local and long haul carriers and entrance diversity.

The TCS NOC receives all alarms that occur within the MDC network. The NOC has connections to ISDN, Frame Relay, and ATM, and two Internet Service Providers.

Any outage within one facility will be picked up immediately by the next identified facility.

TCS has a rigorous back-up procedure that includes tape back up of all server and customer's configuration data to multiple locations. TCS' Disaster Recovery connectivity between all NOCs is tested and monitored at least once each month to ensure reliability.

## 5.1 Fault Management

Each of TCS' applications has been integrated to ensure maximum efficiency regarding trouble resolution and turn-around time. When the Network Management System (NMS) detects an alarm or trap that has been breached, for example, a circuit outage occurs; it sends an alarm trap to the NMS. The Technical Support Engineer troubleshoots the node that trigged the alarm. TCS NOC's trouble tracking system contains information regarding the customers that are effected by the alarm. The Tier I, technical support engineer open's a trouble ticket and begins immediately troubleshooting the service impairment and implementation of the Incident Management Plan (IMP).

TCS Technical Support Engineers are tasked with detection, isolation, and notification of network alarms. They are further responsible for the initial resolution of the problem. An Engineer has been designated with primary responsibility for the MDC network. Persistent problems are escalated to a Senior Engineer (SE) using the Incident Management Plan (IMP) as a guide.

## 5.2 Security Management

### 5.2.1 Security Procedures

The TCS NOC implements and adheres to the following security procedures:

- ☐ NOC physical security utilizes photo IDs and magnetic coded entry cards.
- ☐ TCS uses a variety of firewalls and security devices including, but not limited to the Cisco Systems IOS Firewall Feature Set.
- ☐ All NOC employees have network as well as system logins and passwords.
- ☐ The senior network engineer changes passwords on regular interval.

- ❑ All passwords are changed through the devices, beyond the normal routine six months change.
- ❑ The security response team consists of Tier III Senior Networking engineers.
- ❑ System logs are maintained with automatic logoff after three attempts.
- ❑ TCS responds based on the customer's requirements for notification of attempted or actual security breaches.

## *5.2.2 Router Security*

Router access policies are narrowly defined and thereby create a level of security. For example, extended IP access lists are utilized to allow only SNMP traffic and to deny all other traffic (via UDP ports), such as PING/Echo Reply. Additional measures allow VTY sessions to define networks, locking down the SNMP string and restricting Telnet sessions to management stations only.

Static routes are used to minimize the knowledge of a router's existence to within the network. To gain control of the router security, passwords are changed upon entry into Monitoring Services and then go onto the routine password update schedule.

## 6.0 Technical Support

The TCS Technical Support Center is, co-located in Annapolis, MD and Seattle, WA, and has been designed and built to be a state-of-the-art applications resolution support and data management center. The Technical Support Center houses a wide range of advanced technology and dedicated people with vast skill-sets and experience. The Technical Support Engineers, Subject Matter Experts, Network and System Compute Engineers, Application Engineers, and Tool Development utilize leading edge technology in order to gain accuracy and efficiency in the technical support service business.

## 6.1 Remedy® Trouble Tracking System

The Remedy® trouble tracking software system is used to document all activities performed in the NCC. Remedy is an industry leader in trouble ticket tracking and provides a wide variety of options and functions that assist the TCS NCC in providing a high quality level of support including, but not limited to the ability to:

- ☐ Provide the ability to store information on each customer
- ☐ Verify supported end-users
- ☐ Document problems, events, conversations and actions associated with a call
- ☐ Categorize calls for future trend analysis and reporting
- ☐ Query past incidents to research for solutions to a problem
- ☐ Escalate trouble tickets

We operate a plug-in to the Trouble Tracking software that allows customers to view their tickets using a standard Internet browser. This allows customers the capability of checking on the status of their tickets at any time.

Reports are generated from Remedy showing the performance of the Technical Support Center and our adherence to any related Service Level Agreements.

To ensure that a service-affecting problem receives the necessary attention, an escalation procedure is defined in the IMP. Technical Support Engineers will be staffed to meet and exceed the service-levels negotiated with the SkyTel. Technical Support Engineers are organized to respond quickly to calls, to fully understand the nature of the problem at hand, and to initiate, track, and, if necessary, escalate a trouble ticket.

Technical Support Engineers responsible for both opening and closing all trouble tickets. Technical Support Engineers are also responsible for performing follow-up calls to those users requiring status updates.

TCS provides daily summaries, appropriately aged, of all service requests.

TCS' sample service requests and service request summaries are available for review. TCS provides a web interface for access to service request status and service request summaries from the customer site.

6.2 Incident Management

A complete Incident Management Plan (IMP) is included as Attachment A. The IMP covers five stages of incident management, from when an incident is reported to the NOC through problem resolution. Below is a figure showing the 5 phases of the incident management plan.
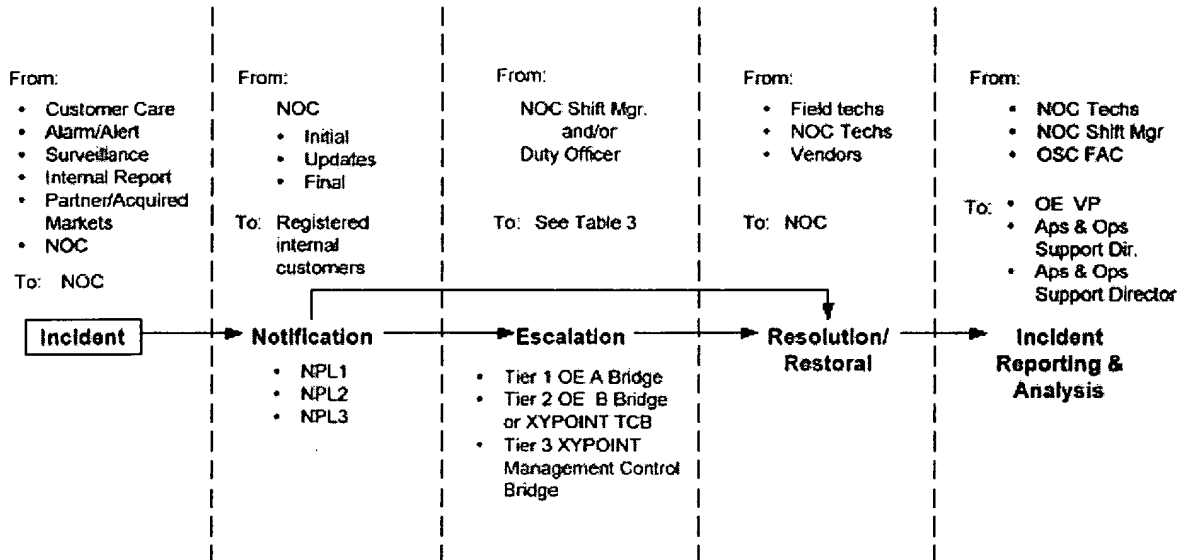


Figure 6-1 - 5 Stages of the Incident Management Plan

## 6.2.1 Phases of the Incident Management Plan

The five phases of the incident management plan are described in the next sections.

Incident
The NOC may find out about an incident through monitoring the network. It may also be reported to them by Customer Service or another internal report, or through one of our partners.

Notification
Once the NOC finds out about the incident, the NOC notifies the internal customers who want to know about outages. These customers have signed up for notification through the Messaging Developer Web Site.

Escalation
The NOC Shift manager and/or Duty Officer may decide to escalate the issue. If an incident is escalated, the NOC opens a teleconference bridge. An incident may escalate more than once; depending on the severity of the incident and the length of time it takes for the incident to get resolved.

Resolution
The specialists (field technicians, NOC specialists, developers, and/or vendors) who are directly working on the problem notify the NOC when the incident has been resolved.

Reporting
When the incident is resolved, the NOC and/or the FAC report about the incident.

6.3 Customer Satisfaction

Our goal is the customer's complete satisfaction with our service. As part of our focus on quality service delivery, TCS is in the process of developing a customer satisfaction survey. Customers will be surveyed regularly, according to quality assurance guidelines, to ensure that TCS' support services are meeting expectations. Should the customer indicate an area that requires attention, TCS will take corrective action. TCS monitors the progress of each problem resolution—both internally and through frequent communication with the customer. TCS will continue this process until the customer is totally satisfied.

## 7.0 Implementation Timeline

TCS proposes the following aggressive implementation timeline based on SkyTel's desire to have an operational offer in place by the end of Q2 2001. This timeline assumes a contract award by May 28, 2001.
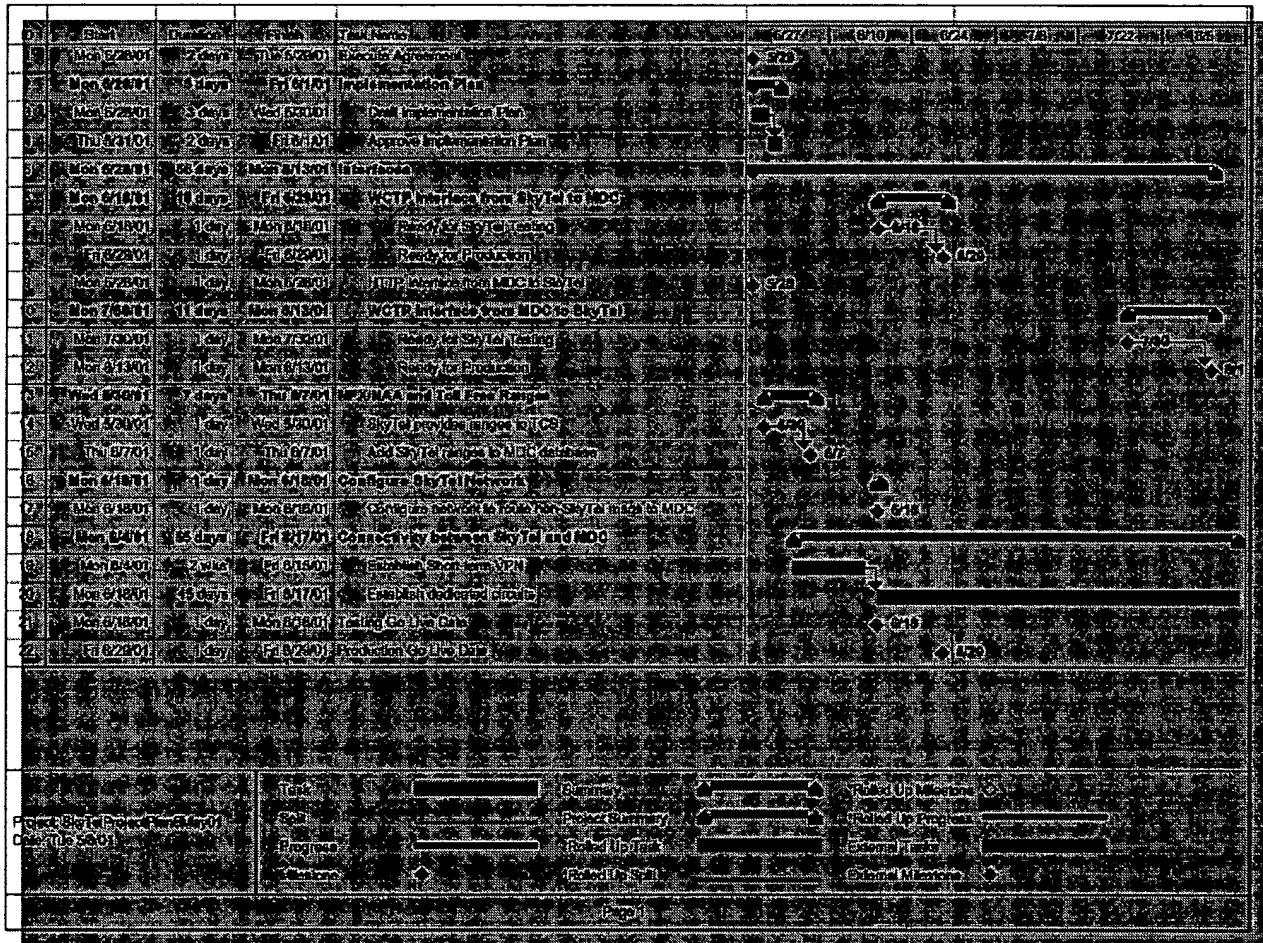


Figure 7-1 - Implementation Timeline

## 8.0 Responsibilities

The integration of the MDC into the SkyTel network is a complex undertaking. Care must be taken to carefully plan the implementation of this project. To that end, below are some of the specific responsibilities SkyTel must recognize through the execution of the initiative.

SkyTel will provide a Project Manger (or equivalent) to:

- ☐ Execute a DNS entry for mdc.skytel.com (or equivalent)
- ☐ Implement the routing of non=SkyTel MINs to the TCS MDC
- ☐ Provide NPA/NAA, as well as toll free and PIN ranges, for all SkyTel devices
- ☐ Provide direction and guidance to SkyTel's personal as required by TCS to maintain project momentum
- ☐ Provide information and resources in a timely manner as needed by TCS to enable TCS to perform/complete the tasks described in this proposal
- ☐ Be readily available as required by TCS for the duration of this Service
- ☐ Draft a Method of Procedure for MDC to SkyTel network via WCTP
- ☐ Coordinate the interface between TCS and SkyTel Marketing Organizations

The SkyTel Project Manger will be responsible for receiving any deliverables created as a result of the services listed in this proposal. Additionally, the Project Manager will have full authority to provide any needed approvals related to project execution.

SkyTel will provide TCS with the following:

- ☐ SkyTel business requirements and relevant Service Level Agreements
- ☐ Access to key SkyTel personnel, including business, IT and operational staff
- ☐ Copies of relevant configuration and process documentation
- ☐ Facilities access as well as access to relevant internal and external systems as needed

## 9.0 Schedule of Fees

Pricing for the MDC is based on a per message price which is determined by your monthly message volume.

| Monthly Message Volume Between | No Minimum Monthly Commitment | With Monthly Commitment |
|---|---|---|
| | Price Per Message | Price Per Message |
| 10,000-49,999 | 0.04627 | |
| 50,000-99,999 | 0.04205 | |
| 100,000-249,999 | 0.04012 | |
| 250,000-499,999 | 0.03696 | |
| **500,000-999,999** | 0.02938 | **0.02604** |
| 1,000,000-1,999,999 | 0.02530 | 0.02268 |
| 2,000,000-4,999,999 | 0.01946 | 0.01751 |
| 5,000,000-7,499,999 | 0.01741 | 0.01575 |
| 7,500,000-9,999,999 | 0.01493 | 0.01355 |
| 10,000,000-14,999,999 | 0.01285 | 0.01171 |
| 15,000,000-19,999,999 | 0.01124 | 0.01029 |
| 20,000,000-39,999,999 | 0.01041 | 0.00957 |
| 40,000,000-59,999,999 | 0.00970 | 0.00896 |
| 60,000,000-89,999,999 | 0.00952 | 0.00883 |
| 90,000,000-119,999,999 | 0.00938 | 0.00875 |
| 120,000,000 and Above | 0.00932 | 0.00874 |

Figure 9-1 - Pricing Matrix

## 9.1 Optional Monthly Commitments

TCS optionally provides reduced rates for customers willing to make a monthly commitment in terms of message volume. Based upon discussed with SkyTel, the Pricing Schedule in Figure 9-1 reflects reduced rates with a monthly commitment of 500,000 messages. Additional discounts can be recognized with higher monthly volume commitments.

If during any billing period, SkyTel's total message volume were less than the Minimum Monthly Message Volume, then SkyTel would owe TCS the Minimum Monthly Payment plus applicable taxes and other charges. If the number of messages exceeds the Minimum Monthly Message Volume, than the standard calculation applies, using the "With Monthly Commitment" pricing.

Rates are subject to change with 30 days advance notice as a result of increases imposed by carrier connectivity costs and other market conditions beyond the control of TCS.

## 9.2 Billing

TCS provides monthly invoices in an easy to read format. Our invoices include the total number of messages transmitted. In addition, invoices clearly set out any taxes or other charges. Invoices are generated within 15 days of the close of a billing cycle.

## 9.3 TCS Direct Customers

TCS will directly engage enterprises interested in transacting messages across multiple carrier networks. For the purposes of the proposal we will refer to these customer as "TCS direct customers". TCS direct customers pay TCS on a per message basis for delivery of messages into carrier's networks. Many of these messages will pass into SkyTel's network. For messages generated by TCS direct customer, TCS proposes to pay SkyTel based on the following schedule:

| Message Volume | | Monthly Per Message Fee Paid to SkyTel |
|---|---|---|
| From | To | |
| 1 | 10,000 | .00692 |
| 10,001 | 50,000 | .00627 |
| 50,001 | 100,000 | .00574 |
| 100,001 | 250,000 | .00553 |
| 250,001 | 500,000 | .00512 |
| 500,001 | 1,000,000 | .00403 |
| 1,000,001 | 2,000,000 | .00341 |
| 2,000,001 | 5,000,000 | .00261 |
| 5,000,001 | 7,500,000 | .00235 |
| 7,500,001 | 10,000,000 | .00210 |
| 10,000,001 | 15,000,000 | .00178 |
| 15,000,001 | 20,000,000 | .00152 |
| 20,000,001 | 40,000,000 | .00144 |
| 40,000,001 | 60,000,000 | .00136 |
| 60,000,001 | 90,000,000 | .00135 |
| 90,000,001 | 120,000,000 | .00134 |
| 120,000,001 | Unlimited | .00133 |

Figure 9-2 – Fee Schedule for TCS Direct Messages

10.0 Assumptions & Considerations

1. TCS will assign a Project Manager to this engagement and will coordinate project management activities with SkyTel's Project Manager. The TCS Project Manager will have primary responsibility for coordinating all activities for this Service, including scheduling resources, confirming project activities and deliverables are within the scope of this Proposal. The TCS Project Manager will serve as TCS's single point of contact for this Service.

2. Meetings will take place at 515 E. Amite Street, Jackson, MS 39201. However, TCS can make its facilities available if required.

3. The engagement will begin according to the timeline defined in Section 7.0.

4. Any resultant contract will be subject to negotiation of mutually agreeable terms and conditions.

5. SkyTel does not require Call Detail Records (CDRs) for this initiative.

6. SkyTel will assume all costs for circuit provisioning between the MDC Data Centers in Seattle, WA and Ashburn, VA and the SkyTel Network Operations Centers in Jackson, MS and Austin, TX.

7. This proposal is valid for 90 days from May 7, 2001.

## 11.0 Business Terms

TCS proposes the following business terms to define the relationship between TCS and SkyTel. Final negotiated business terms including pricing matrices will be incorporated into a formal agreement.

- ❑ TCS contracts only with Opt-In Message Providers to provide direct connectivity with SkyTel

- ❑ TCS agrees to provide SkyTel with Usage Reports and Message Forecasts on message traffic transmitted to SkyTel's network

- ❑ TCS will set MDC throttling limits so as not to exceed the limits specified by SkyTel

- ❑ Both parties agree to provide access to Technical Operations Support Engineers on a 7x24 basis

- ❑ SkyTel will provide TCS with dedicated points of contact for Operations/Connectivity, Reporting, Testing, and clarification of supported NPA/NXX Ranges, including toll free numbers and PINs

- ❑ TCS may request and SkyTel will provide clarification of certain NPA/NXX, including toll free numbers and PINs ranges, supported by SkyTel's network

- ❑ SkyTel agrees to set the maximum number of messages that may be transmitted to its network by the MDC to _____ per second ("Maximum Message Capacity")

- ❑ SkyTel agrees to ensure that Opt-In Messages transmitted to its network are not blocked by anti-spamming filters as long as TCS does not exceed Maximum Message Capacity

- ❑ Both parties agree to a press release announcing partnership within thirty days

- ❑ Both parties consent to allow the use of the other party's name on its partner and/or customer lists

- ❑ SkyTel agrees to configure its Messaging Center so that Mobile Originated Messages not recognized by the SkyTel network be redirected to the MDC

- ❑ TCS agrees to provide SkyTel with a Settlement Statement on a monthly basis. The Settlement Statement shall contain the number of billable messages received by the MDC on behalf of SkyTel customers, the amount due to TCS for processing the billable messages, as well as any credits or charges due under the agreement ("Amounts Due TCS"). The Settlement Statement shall also contain the number of billable messages transmitted to SkyTel's network that originated from TCS Direct Customers ("Amounts

Due SkyTel"). The Settlement Statement shall calculate the difference between the Amounts Due TCS and the Amounts Due SkyTel.

❑ Three year initial contract term with a two year renewable option. Pricing may be renegotiated annually.

❑ TCS shall provide SkyTel with a Service Level Agreement (SLA) that a) guarantees uptime (99.99%); b) provides Guaranteed Message Throughput rates (process all messages received by MDC in 3 seconds or less) as long as the message volume does not exceed quarterly message projections; c) provides guaranteed call rate response times; and d) achieves specified call abandonment and speed to answer levels. The SLA shall provide service credits to SkyTel when a particular SLA provision has not been met due to action or inaction on the part of TCS.

❑ TCS shall be allowed specified windows during which normal maintenance may be accomplished and the MDC will not be available for message transmission. Such windows shall be scheduled during mutually agreed upon hours. Normal maintenance windows shall not be counted as downtime.